Supplementary Information: The Evolution of Trust and Trustworthiness

Aanjaneya Kumar, Valerio Capraro and Matjaž Perc

July 12, 2020

In this supplementary note, we present figures supporting some of the results mentioned in the paper. Figure 1 presents a comparison between the time evolution of the two surviving strategies (N,B) and (N,R) on a square lattice, triangular lattice, hexagonal lattice, and well mixed populations. It is clear that the trend of evolution on these different lattice types is very similar to the evolution in well-mixed populations. This provides evidence for the fact that spatial correlations do not promote the evolution of trust. Furthermore, in Figure 2, we present a heatmap for the stationary densities of the four strategies on an ER random network ($p = 0.02$) consisting of 500 nodes when an unnormalized imitation is performed. The results obtained are very similar to the case of well-mixed populations. The time evolution of the different strategies is plotted in Figure 3 for the special case of $x = 1$ and $r = 0.5$.

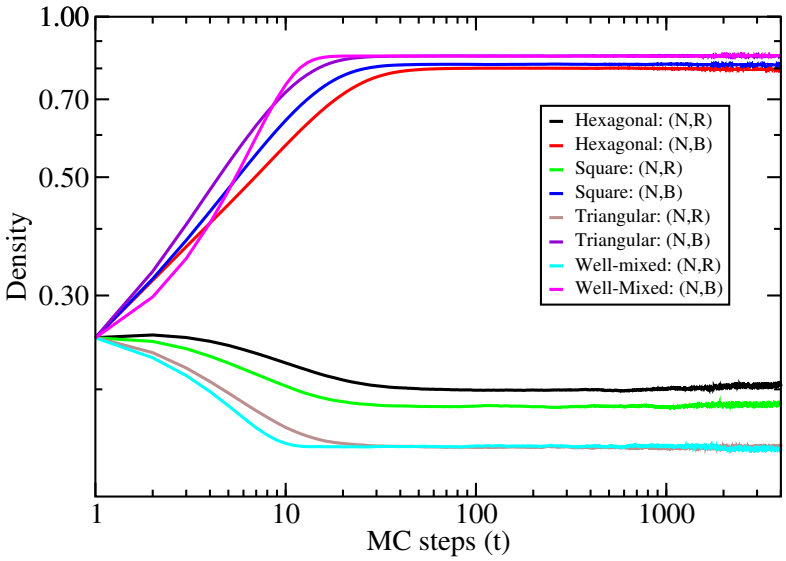

Figure 1: A comparison between the time evolution of the two surviving strategies (N,B) and (N,R) on a square lattice, triangular lattice, hexagonal lattice, and well mixed populations.

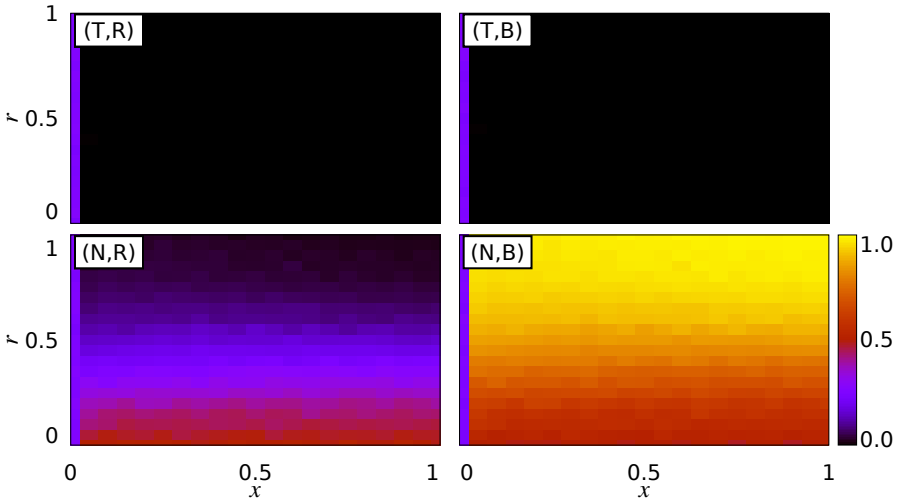

Figure 2: The stationary density of the four strategies on an ER random network ($p = 0.02$), plotted on a 20×20 grid of (x, r) values with both x and r ranging from 0 to 1.

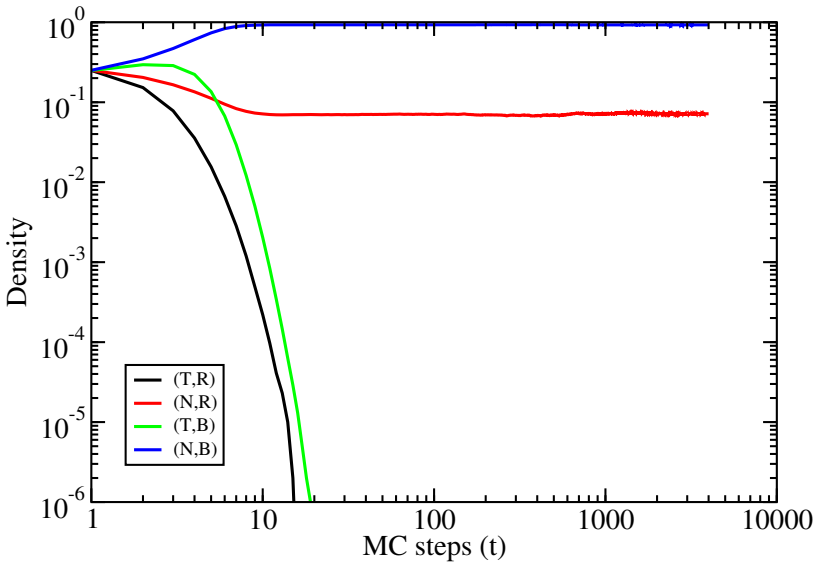

Figure 3: Time evolution of the four strategies in a scale free network for values $x = 1$ and $r = 0.5$, for the unnormalised replicator dynamics on an ER network ($p = 0.02$).